MAY, MDCCCLIII.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CXXVII.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

E. NEWMAN, 9, DEVONSHIRE STREET

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NOTICES OF NEW BOOKS.

'*A Naturalist's Sojourn in Jamaica.*' By PHILIP HENRY GOSSE, A.L.S., &c.; assisted by RICHARD HILL, Esq. London: Longmans. 1853.

(Second Notice).

THE copious extracts from this work given in our last number (Zool. 3850), will we think abundantly justify the cordial commendation we bestowed upon it. Mr. Gosse is not a mere compiler,—a mere popularizer of other men's observations; he possesses not only the art of clothing his subject in a garment of agreeable phraseology, but has made that subject peculiarly instructive and complete by a very great number of original and interesting observations. And here we cannot confine our praise to the author, but feel in justice bound to divide it between himself and his most able coadjutor, Mr. Hill, whose long residence in Jamaica has afforded him opportunities of observation which a mere sojourner could not hope to enjoy. Mr. Gosse gives his coadjutor full credit for the value of this assistance: in the title-page, in the preface, in almost every chapter, does he give full and grateful credit to the worth and importance of Mr. Hill's co-operation: indeed, a considerable portion of the volume, and that certainly not the least interesting, consists of verbatim extracts from this observant naturalist's manuscripts. Truly delightful is it to see kindred minds thus associated,—kindred minds thus working together for the public good. Such, we could fancy, were Gilbert White and Daines Barrington; and such might have been the correspondence of White and Barrington, had not the part of Barrington been unfortunately omitted.

The time is certainly approaching, when Nature shall claim from her admirers more of these tributes to her living and breathing majesty; when Natural History shall cease to be a mere science of admeasurement; when it shall become, in accordance with its name, really a *history*. Honoured be those who use their energies in such a cause, — who employ their pens in bringing about a revolution, a consummation so devoutly to be wished!

We shall give but one more extract from the 'Naturalist's Sojourn,' but that one comprises a much more complete history than the unconnected paragraphs already cited: and, in conclusion, we have only to

BRITISH MUSEUM

add that we strenuously recommend every reader of the 'Zoologist' to become a purchaser of the 'Sojourn.'

The Smooth Sheath-claw.—"June 3rd.—Coming down from Bluefields Peak about noon, my attention was attracted to two of these geckos (*Thecadactylus lævis*), resting near each other on the trunk of a tree, beside a deep cleft. From a slight difference in their size, I supposed them male and female; I struck at one with my riding-switch but failed to reach it; and they both glided into the hollow tree. Soon, however, they began to peep out again; and I desired my servant to mount the tree in order to drive them out; which he did by thrusting in a stick at the opposite side. The larger darted out, and on being touched, precipitated himself to the ground, where he began to wriggle with the usual awkward agility of the species; I struck him lightly with a stick, but in so doing unfortunately severed the tail from the body.

"The amputated member, however, continued to writhe in rapid contortions. I now put down a tin canister on the ground, with the open mouth just before the animal's head, and on being touched behind, it darted in according to its natural propensity to take refuge in dark holes and crevices, and I thus secured it. Its colours had been till now dark brown handsomely mottled with black, but on my arrival at home I found it of a dirty white or drab, with the mottlings few and almost obsolete. The stomach was found on dissection to contain fragments of beetles, but in the intestine was a leguminous seed.

"The appearance and physiognomy of this lizard are unprepossessing; there is a savage sullenness in its look, very different from the meek countenance of the Ameiva. It is very common, particularly in out-buildings and offices, where it inhabits crevices in the roofs and rafters, a pair commonly living in the same hole or near together. On the approach of night one hears on all sides the singular, cracked, cackling call of these animals, somewhat like the sound produced by drawing a stick across a comb. M. Dumeril's suggestion, that this voice may be produced by the tongue smacked as it were in the concavity of the palate, is the less unlikely from the fact that this organ is large, flexible, and fleshy. The name of croaking lizard commonly applied to the species in Jamaica, is derived from its peculiar voice. In the woods the voice is also heard at night proceeding from hollow trees, and continued through the whole of the hours of darkness.

"The large prominent eye without any eyelid, whose pupil contracts in strong light to a perpendicular line, indicates their nocturnal habits; yet they are frequently seen by day, as in the case just mentioned.

In the old mill-house at Bluefields they are numerous; and two or three pairs may be seen day after day at the same spot, peeping out of their crevices and remaining perfectly still for hours. Sometimes they venture forth, and may be observed crawling slowly along the beams and rafters, moving with excessive deliberation, and never going far from their holes, into which they dart on the least alarm with swift rapidity.

"The curious structure of the feet in the Geckotidæ, by which they are enabled to walk on reversed surfaces, has been often described. The toes in this species radiate from the foot, are dilated into broad oval disks, and have the under surface covered with transverse laminæ, the edge of each overlapping its successor. Minute hooked claws, very acute, like those of a cat, doubtless assist the animal in its feats of this kind. I do not, however, remember to have ever seen this gecko actually back downward, but often crawling on the vertical side of a beam.

"The skin of this animal is very loosely attached to the muscles, and is so soft and fragile that it tears with a mere touch, like wetted brown paper. The head and back are covered with minute conical tubercles very closely set, which on the sides and towards the tail, become more inclined, and flattened in a posterior direction, so as to form overlapping scales, which are most regular and largest on the belly and tail; each is in contact with six other surrounding ones. The under side of the tail is crossed by a series of broad plates here and there, varied however by two broad scales supplying the place of one plate. The tail has no transverse folds, but the scales are arranged with regularity there. I have not been able to detect any femoral pores.

"The periodical casting of the skin takes place much as in other lizards. The head and fore parts begin to assume a white appearance, and the next day the skin of these parts separates from the surface of the body, often irregularly, and lies in loose ragged folds around it. It now looks like muslin of the most delicate fineness; it is slit down the back and separated, but not yet thrown off. At the same time the hinder parts have the same whiteness as the head on the previous day; for there seems always to be the difference of the day in the sloughing of the fore and hind parts. When the cuticle is however manifestly detached, it is not thrown off at once, but hangs around the lizard like a ragged garment for several days; apparently to its no small annoyance.

"The reproduction of the tail in lizards, after it has been accidentally lost, is a very curious phenomenon which seems not to have been observed with sufficient precision. In this species it takes place with great rapidity. The facility with which the tail separates has been already alluded to; it is said that the animal will frequently cast off this member spontaneously in its contortions on being put alive into spirits; and that the contraction of the tail into a globular form has given occasion to the supposition that a distinct species existed, called the turnip-tailed gecko, (*Thecadactylus rapicauda*); this, however, I have not seen.

"One day, at Grand Vale, I observed on a gate a gecko with a new tail, not more than an inch and a half in length, abruptly tapered. The animal had a singular appearance, the tail being of a bluish gray hue, marked with longitudinal black stripes; it had a silky gloss; but was closely covered with minute transverse wrinkles. (The ordinary length of the tail when perfect is about five inches).

"About the middle of September I caught in a noose one which I had deprived of its tail a few days before in attempting to secure it. The separation had taken place about half an inch behind the vent. I put the reptile into a gauze-covered box for observation. In less than a week the new tail was manifest in the form of a bluish tubercle projecting from the centre of the wound. About this time I captured one with a renewed tail, which member was covered with tuberculous scales as the original had been, and the inferior surface of which displayed the ordinary transverse plates.

"In fact I should not have known it had been severed but for the dark gray colour, the peculiar character of the striping, the manifest suture at the point of junction, and the smaller size than normal of the scales and plates. On comparing the tail of my own living one with that of this specimen, I perceived that it differed in the absence of scales, the surface being silky and covered with fine transverse wrinkles as the one observed at Grand Vale. On the 10th of November the tail was about an inch and one-eighth long, when it threw off its skin, the sloughing being confined to the recent part, and I was surprised and pleased to observe that the new surface displayed both scales and transverse plates, but both small. The colour was still dark gray, with pale irregular longitudinal stripes or dashes. About the beginning of December the animal escaped, the cage having incautiously been left open; the tail was then fully an inch and a half long, and the tip had become compressed.

"On the 21st of October I had found, adhering to the inside of the door of the cage, an egg of a short oval form, shelly in texture, and of a pure white hue. It adhered to the wood by a flattened base, as if it had been deposited in a soft state; when I saw it the top had been slightly crushed in, probably by accident, and this appeared to have been fatal to it, for its contents gradually dried up. I conjectured at the time that this egg had been deposited by the gecko, but I could not be quite certain, because one or two Anoles were kept in the same cage. But on the 21st of February, as I was riding to Savanna-la-Mar, and passing a large fig-tree that overhangs the sea-shore at Cave, I observed in a little crevice in the trunk—or rather in one produced by the singular anastomosing of the supra-terrestrial roots—several eggs. On dismounting, I found they were about eight in number, and evidently of the same kind as the one above noticed. Their form was irregularly oval, round, or rondo-triangular, all flattened, very much resembling in size, shape and colour, those comfits called lemon-drops: their greatest diameter was about half an inch. They were shelly, but the shell was thin and very brittle; yet it was evident they had been soft when laid, for they adhered to each other, and the side of one was, as it were, let in to that of its neighbour, and at the base of some was a thick mass of shelly matter, as if a semifluid substance had run down and then hardened. That all had not been deposited at once, seemed apparent from their diverse degrees of maturity; some containing only a white cream or soft curd, others the lizard fully formed but immature; while one which I broke displayed the smooth sheath-claw perfectly formed and coloured, which presently crawled out, being quite independent of the vitellus. The head of this new-born gecko was large; the belly (of course) thin; the toes well formed; the tubercles perfect, the markings dark and beautifully distinct; the pupil linear and perpendicular. The length was two inches and a quarter; one-third of an inch of the extremity of the tail was pure white, abruptly defined from the darker colour. The surface of the eggs, under a lens, was covered with minute tubercles of lime, something like a whitewashed wall.

"The cavity in which these eggs were found was so narrow that I cannot understand how the lizard managed to deposit them in their situation, unless (which seems very improbable) they were first laid and afterwards placed with the feet.

"After a few weeks, being again in that neighbourhood, I noticed that another egg had been laid since the removal of the former, and in the course of a month two more, occupying the place of those first deposited.

"We thus perceive that the gecko lays her eggs at considerable intervals of time, but selects the same spot for their deposition.

"The ill fame under which this genus labours in most parts of the world where it is known, attends it here. An indefinite dread of its being in some way hurtful generally prevails, perhaps mainly dependant on its repulsive aspect and stealthy motions. It is however perfectly harmless; feeding on insects and berries. I have already mentioned the contents of the stomach in one specimen that I examined; in another this viscus, a membranous sac, nearly as long as the trunk, contained nothing of an animal nature, but only some pulpy berries, and several stony seeds closely like those of a grape.

"One which I captured with a hair noose, indeed, on being turned into the lizard-box, seemed to manifest hostility to the Anoles which were there; these fled from it, and the gecko appeared to have a desire of pursuing, for it crept towards one and another with a stealthy step, the belly and head being on the ground, like a cat watching a mouse. Yet these actions might be nothing more than the manifestation of caution on being put into unwonted circumstances.

"While thus engaged, it ever and anon licked its lips with its protruded tongue, an action common to all our Geckotidæ. The ordinary length of the species is about nine inches."—p. 158.

'*The Annals and Magazine of Natural History*,' *No.* 64, *dated April*, 1853.

THE papers in this number are intituled: —

'Remarks on British Plants.' By Charles C. Babington, M.A., F.R.S., F.L.S., &c.

'On the Chitonidæ.' By William Clark, Esq.

'Additional Character of the Shell of the Cyclostomatous genus Alycæus of Gray, with descriptions of its Animal Inhabitant — of a fourth Species—and of other new Indian Cyclostomata; also remarks on an unrecorded Character in Diplommatina.' By W. H. Benson, Esq.

'On the Animal of Myochama anomioides.' By Albany Hancock, Esq.

'On the Germination of the Resting Spores, and on a form of Moving Spores in Spirogyra.' By Dr. W. Pringsheim. [Translated from the 'Flora' of August 14 and 21, 1852, by Arthur Henfrey.]

'Description of Rhopalodina, a new form of Echinodermata.' By J. E. Gray, Ph.D., F.R.S., V.P.Z.S., &c.

'Rambles in Ceylon.' By Edgar Leopold Layard, Esq.

Bibliographical Notices: — 'Principles of the Anatomy and Physiology of the Vegetable Cell.' By Hugo Von Mohl. 'Handbuch der Conchyliologie und Malacozoologie.' By Dr. R. A. Philippi.

Proceedings of Learned Societies: — Royal—Zoological—Botanical of Edinburgh—Dublin University Zoological Association—Entomological.

Miscellaneous: — Eucratea chelata; by John Coppin. A new genus and species of Crustacea; by James Eights. On the Coleopterous Insects of the genus Cebrio; by M. Guérin Méneville. On the Reproduction of the Toad and Frog without the intermediate stage of Tadpole; by Edward Joseph Lowe, Esq., F.G.S., F.R.A.S.

Mr. Lowe's paper on the reproduction of frogs and toads without the intermediate stage of tadpole, is one of great interest, and is not altogether unsupported by the previous observations of naturalists. The same facts have been repeatedly asserted of several exotic species of toad; and kindred facts have been observed in this country of the reproduction of the common salamander in confinement. Nevertheless, in reading the five positions laid down by Mr. Lowe, which are given verbatim below, it is impossible not to observe that some of the inferences drawn are not sequent on the premises. More exact and methodical observations are required before we can receive this departure from Nature's laws as an established fact.

"First: — *Toads deposit Spawn in Cellars, and Young Toads are afterwards observed.*

"Last summer several masses of spawn were procured from my cellar, having been found deposited amongst decaying potatoes, &c.; and subsequently young toads were noticed. The cellar is free from water, and at a considerable distance from any brook."

In this observation spawn is stated to have been present; but, although under the author's own eye, no attempt appears to have been made to trace a connexion between the spawn and the young toads. The deposition of toads' spawn in masses, moreover, is at variance with my own experience: I have always found it in ropes, after the fashion of a string of beads.

"Secondly: — *Young Toads are observed about hot-beds.*

"In the kitchen-garden at Highfield House (which is entirely walled round), young toads have been noticed about the cucumber and melon beds. The gardeners have been in the habit of bringing toads to these beds to destroy the insects: these have continued amongst the warm damp straw all summer. It is after these beds have remained three or four months that the young ones have been noticed. Toads would have to travel nearly half a mile to reach this garden from the brook or lake, and also to mount a steep hill, besides taking the opportunity of coming through the door. Toads so small are not seen in any other part of the gardens."

The occurrence of toads, large and small, in walled gardens, and especially about cucumber-frames, is very familiar to me: it may be a question how they get there, but other solutions to the difficulty may be proposed quite as plausible as the supposition that Nature has so widely deviated from her ordinary course. A well-authenticated instance of a toad's vagaries is before me: — a singularly fine specimen was shut in a small empty room, to await immersion in spirits, when the etceteras could be procured; on opening the door of the room he was missing, and was eventually found sitting peacefully on the ledge over the door.

"Thirdly: — *Young Toads and Frogs observed in abundance at the summit of another hill, whilst quite small.*

"During the past summer, especially in the month of July, very many young toads and frogs were seen amongst strawberry-plants, apparently from a week to a month old. These might possibly have travelled from the brook a few hundred yards distant; yet it is strange, that with the exception of these beds, no young toads could be found elsewhere in the garden. A number of full-grown toads are mostly to be seen about these beds."

Such an occurrence is very common, indeed it is observable every summer; but it does not appear to bear on the subject under discussion, it merely shows that toads, whether large or small, are fond of strawberry-beds.

"Fourthly: — *Young Frogs dug out of the ground in the month of January.*

"In digging in the garden amongst the strawberry-beds (near where so many toads were observed last summer), in the middle of January in the present year, a nest of young frogs were upturned. These were apparently three or four weeks old. This ground had been previously dug in the month of August, and many strawberry-plants buried; it was amongst a mass of these plants in a state of partial decomposition, that these young ones were observed."

There is a *non sequitur* here: surely the young *frogs* are not supposed to have been the issue of the old *toads!* and their occurrence in the ground does not at all support the author's view, for it is quite as probable that a frog which had passed the tadpole state would be found in the earth, as one which had not.

"Fifthly: — *Young Frogs are bred in Cellars where there is no Water for Tadpoles.*

"In mentioning this subject to Mr. Joseph Sidebotham, of Manchester (an active botanist), he informed me that young frogs, and in fact frogs of all sizes, were to be seen in his cellar amongst decaying Dahlia-tubers. The smallest of them were only about half the ordinary size of the young frog when newly developed from the tadpole. He further stated that there was no water in the cellar, and no means of young frogs entering, except by first coming into the kitchen, a mode of entry if not impossible, highly improbable. Mr. Sidebotham never found any spawn."

This observation would go to prove that the spawn itself was an unnecessary stage, and therefore militates against the second observation, in which the presence of spawn is cited in support of the theory.

'*Transactions of the Entomological Society of London.*' Vol. II. New Series. Part 4.

THIS is one of the best parts, if not the very best, ever issued by the Society. It contains the following papers: —

'On the Identification of the yet undetermined Species of Micro-Lepidoptera, mentioned in the Mémoires of Reaumur.' By J. W. Douglas, Esq.

'Descriptions of some Longicorn Beetles discovered in Northern China by Robert Fortune, Esq.' By W. Wilson Saunders, Esq., F.L.S., &c.

'Notes on the Habits of various Insects.' By Mr. William Varney.

'Contributions towards the Natural History of British Micro-Lepidoptera.' By J. W. Douglas, Esq.

'Notices of some new Species of Strepsipterous Insects from Albania, with further Observations on the Habits, Transformations, and Sexual Economy of these Parasites.' By S. S. Saunders, Esq.

The Chinese Longicorn beetles described by Mr. Saunders are six in number: — Eurypoda antennata, Philus inconspicuus, Callichroma Faldermannii, Colobus sericeus, Cerosterna hispida, and Glenea Fortuni.

The subjects in Mr. Varney's paper are : — Sting of Bee, Moss-carder Humble Bees, Wasp-nests, Mason Wasps, Wasps killing Flies, Honey Bees, Bees fond of Water, Leaf-cutter Bees, Transformations of Caterpillars, Winter Midge, Caterpillars of Bryophila perla, Blow Flies. On each of these subjects there is interesting information, not always striking for its novelty, but in every instance quite worth recording.

The paper by Mr. S. S. Saunders on the habits of the Stylopidæ in the larva state, is of great value, and exhibits the knowledge both of "what to observe" and "how to observe." The author's observations are made with the greatest possible care, and are recorded in the most lucid manner. His remarks have reference, 1st, to the saltatorial powers of the larvæ in the minute hexapodal state ; 2ndly, to their mode of attack ; 3rdly, to their first moult; 4thly, to their position in the feeding state; and 5thly, to their mode of effecting their exit.

'*Proceedings of the Berwickshire Naturalists' Club.*' Vol. III. No. 3.

A NEW part of these 'Proceedings' is just issued, and is so interesting, that we cannot but regret that the papers it contains should have so limited a circulation as their publication in so restricted a channel of necessity entails. The contents are thus intituled : —

'Address to the Members, delivered at the Anniversary Meeting held at Newtown, September 8th, 1852.' By Robert Home, Esq., President.

'Sketch of the Geology of the Howick Coast and Ratcheugh Crag, visited by the Club on the 4th of August, 1852.' By Geo. Tate, F.G.S.

'Notice of Asplenium germanicum.' By Geo. R. Tate, Alnwick.

'An Account of an Assemblage of Ancient Sepulchral Monuments, in the East of Berwickshire.' By Mr. James Hardy.

'On some Excrescences &c. on Plants, occasioned or inhabited by Mites.' By Mr. James Hardy.

'The Acarides of Berwickshire specifically described.' By George Johnston, M.D.

'On the Frugivorous Habits of some Geodephaga.' By Mr. James Hardy.

'Notice of two ancient Tombs or Graves discovered and opened in Spring, 1851, upon Adderstone Low Mill Farm, in the Parish of Bamburgh.' By P. J. Selby, Esq.

Two of Mr. Hardy's papers are so interesting to the zoologist, that we give them entire: the first refers to the excrescences produced on plants by mites.

"A few days ago, I met with several small galls on the leaves of the hackberry (*Prunus Padus*), which I expected would furnish the larva of a gall-midge (*Cecidomyia*) or gall-fly (*Cynips*). They are green or slightly purplish, obovate, thickish, white, hirsute, and are scattered over the upper surface of the leaf, like a crop of minute mushrooms. On opening them I found them hollow, without any apparent inmate, or anything remarkable except a few hairs, the continuation apparently of a thick crop placed at their orifice in the depression on the under side of the leaf. A few pink objects, however, at length caught my attention; and on reflection, knowing that such excrescences were sometimes ascribed to mites, I resolved to ascertain if these were not such. Next day, on shaking a few upon a slip of glass, and placing them under the microscope, I observed that they exhibited motion; and some of them were not long in pushing out their legs and crawling slowly about. They were all in the larva state, elliptical, round-bodied, with four short legs placed close behind the head; the abdominal part is long and flexible, and has about four hairs before the tip, and about as many near the shoulders. They are too minute to be seen by the naked eye; even under a triple lens, they are mere linear atoms, without vestige of limbs. They are white, yellow, pale brown, or pinkish. Two species of mites were found on the outside: one, a yellowish rapidly running species, common upon foliage, that appears to deposit its ova upon the hairs of the plants on which it occurs; the other was a true, flattish, pale whitish, testaceous Acarus, and is most likely the parent of the young mites in the gall.

"Knowing there were many similar galls on leaves, I next investigated those hairy purple warts so abundant near the midrib of the sloe, and found them likewise to be nests of apparently the same species of Acarus.

"The alternate blisters along the sides of the alder-leaf, and occasionally found on that of the birch, gave the same result. The species on the alder is probably different. The old mite accompanying them is a mere point, and is well distinguished by two or three squarish brown spots near the tip of the abdomen.

"The leaf of Salix aurita offers not less than four different galls: one large and smooth, occasioned by a black saw-fly, (Linn. Fn. Suec. 2301); two caused by the larvæ of unknown species of gall-midge, (*Cecidomyia*); and a fourth minute purple one, which is very abundant, and is analogous to those occurring on the sloe and bird-cherry. The last, like them, contains only young mites.

"Another locality for mites I find in some round bud-like productions on the twigs of hazel. From green they become yellowish, and then wither. The larva is white, as is the accompanying mite.

"A rough, pale green or purplish, fungus-like gall, which opens from the under side of the leaf, is abundant on the foliage of the alder in some of our deans. This is also a nursery of young Acari.

"A conspicuous yellow gall near the summits of the stalks of Galium verum, growing on the sea-coast, is also owing to mites. The round fleshy galls of this plant are caused by the larvæ of a Cecidomyia.

"Colonies of young mites distort the leaves of Galium Aparine, Lotus corniculatus, Polygala vulgaris, and Campanula rotundifolia, by causing them to assume fantastic shapes, to become discoloured, to thicken, or their margins to roll inwards. The foliage of Galium Aparine is also affected in this manner from the presence of the larvæ of Psylla velutina of Foerster, (Verhand. Natur. Vereins. Preuss. Rheinlande, 1848, p. 87); which appears not to differ from Ps. Galii of the same author. This Psylla produces similar effects on Galium palustre and G. uliginosum; and it lives likewise upon the leaves of Comarum palustre.

"The hoary, rounded, woolly tufts, so abundant in some places at the summit of the shoots of the wild thyme, are also the production of a crowd of young mites, as was first ascertained by Loew, (Dipterologische Beitr. iv. 24). Lightfoot (Flora Scot. i. 318) attributes them to a Chermes (*Psylla*); and Bremi thought they were owing to the larvæ of a gall-midge. The two Bauhins considered plants in this condition as a distinct species; the 'Serpillum vulgare, minus, capitulis lanuginosis,' (C. Bauhini, Pinax, 220); 'S. vulgare, capitulis tomentaceis, candicantibus,' (J. Bauhini, Hist. Plant. iii. 269). Tournefort, however, conjectured that such appearances were owing to the irritation occasioned by some insect pricking the buds (Hist. Plantes des Environs de Paris, 149. Paris: 1698).

"I have not had an opportunity of examining lately these white tufts on the wild thyme; but young specimens that I brought from Northumberland in July, afforded no traces of a gall-midge, to which they had been ascribed by various writers.

"In conclusion, I may mention that I shall feel obliged to any member of the Club for fresh specimens of the following galls, should they ever occur during their researches: —

"Smooth galls on the leaves of the beech.

"Smooth galls on the leaves or buds of the lime.

"Galls on the dyer's green-weed, (*Genista tinctoria*).

"Galls on the bryony and the box-wood.

"Galls and excrescences on Salix alba, S. purpurea, and S. fragilis.

"Large gall on the stalk of Hieracium sabaudum and Cnicus arvensis."—p. 111.

In his paper "On the Frugivorous Habits of the Geodephaga," Mr. Hardy gives the following examples of this apparent aberration of insect appetite, which have fallen under his own observation: —

"It is now, I believe, agreed on all hands, that Zabrus gibbus occasionally feeds upon grain; and some of the larvæ of Amaræ have been ascertained to be vegetable feeders. This, however, is the amount of information that we possess on the subject: all the other beetles of this division have been ranked as carnivorous, an inference drawn principally from the structure of their mouth and stomach. Notwithstanding this, however, it appears that several of those so-called Carnivora mix with their stronger meals a certain proportion of vegetable diet. Of the Amaræ I have observed two feeding on plants: — Amara plebeia, which often mounts Poa annua to feed on the pollen; and A. familiaris, which tears open the capsule of the mouse-ear chickweed (*Cerastium viscosum*), and devours the half-ripened seeds. Omaseus melanarius, a well-known destroyer of earth-worms, I have detected eating the nearly ripe seeds of the hemp-nettle, (*Galeopsis Tetrahit*). Curtonotus piceus is well known to occur frequently upon the knapweed, and to thrust its head down amongst the seeds, with, it was supposed, the intention of obtaining the dipterous maggots that feed upon the seeds of the plant. I have now little doubt that its object is the seeds alone, as only yesterday I found one employed in a similar manner upon the bog-thistle, after it had devoured the skin of one of its seeds, the interior having been eaten before my arrival. I afterwards saw another pull up a seed from the head of an autumnal dandelion (*Apargia autumnalis*), and then proceed to make a meal of it. Calathus cisteloides will probably be found to have similar habits. One evening I found four individuals near the summits of the rag-wort; but they observed my approach, and either hid themselves amongst the foliage, or dropped to the ground."—p. 123.

List of the Land and Fresh-water Mollusca found in Aberdeenshire and Kincardineshire. By JAMES TAYLOR, Esq.

THE publication of Mr. Norman's list of the Mollusca of Oxford and its neighbourhood (Zool. 3761), has led me to believe that a similar list of those found with us would be acceptable; since it is only by the publication of such lists that collectors can arrive at a knowledge of the rarity or abundance of species in different localities throughout the kingdom. Besides the utility of local lists of species to collectors in effecting the exchange of specimens, they lead to a more correct knowledge of their geographical distribution. One thing is certain, the publication of such lists shows how much the study of Mollusca has been on the increase during late years, and one now and then in the pages of the 'Zoologist,' would give us further information. Local lists of shells are to general Conchology what local lists of plants are to general Botany; since it is well known that many species both of plants and mollusks are confined to particular spots, the result of some peculiarity of constitution in the animal or the soil, while others are more generally distributed. A correct knowledge of the distribution of the Mollusca would greatly facilitate the labours of the collector.

Some of the species mentioned in Mr. Norman's list have not been found here in a living state, *e. g.*, Neritina fluviatilis, Paludina vivipara and achatina, Bithinia tentaculata and ventricosa, Helix pomatia and many others, as may be seen on a comparison of the lists; but dead specimens of some of these have been found amongst ballast, and some cast on the beach; these will be mentioned at the end of the list.

The nomenclature is that of Gray's Turton; any other authority will be mentioned.

Arion ater. Common in meadows and by way-sides during summer and autumn.

Limax maximus. Plentiful by the sides of the Don and the Dee, at Nether Banchory.

„ flavus. Rather common under stones and by the walls of houses.

„ agrestis. Abundant.

„ marginatus, *Drap.* Gardens at Old Aberdeen, Den of Leggart. This Limax may be seen ascending trees to a great height during moist weather.

Helix aspersa. Common about old walls in gardens.

„ hortensis. Very abundant.

„ „ var. *fasciata.* Common.

„ „ var. *unicolor.* Common.

„ „ var. *arenicola.* Rare. In the Belhelvie Link, at the roots of Ammophila arundinacea and Triticum junceum.

„ nemoralis. Plentiful at Birse, about thirty miles from Aberdeen, up Dee-side; first found there by Mr. Ewan. I find that it has the same varieties as H. hortensis.

„ arbustorum. Common.

„ „ var. *maritima.* Plentiful along the coast.

„ caperata. Plentiful in cornfields at Upper Banchory, and on an old granite wall near the brick-kilns, Old Aberdeen.

„ hispida. Not common. Under stones at the ruins of Dunottar Castle.

„ Trochilus. Rare. Banks of the Dee and Don, and the Den of Rubislaw, among dead leaves.

„ lamellata. Rare. Found by Dr. Dickie in the Den of Rubislaw, on the fallen leaves of Acer Pseudo-platanus.

„ aculeata. Rare. Den of Rubislaw.

„ pulchella. Abundant among moss and in damp places at Nether Banchory, and sand-hills between the Dee and Don.

„ fusca. Plentiful on fallen leaves at the old bridge of Don, and Nether Banchory.

Zonites rotundatus. Abundant.

„ cellarius. Common by walls and hedges, in damp shady places.

„ nitidus. Common among herbage at the foot of walls, and under stones.

„ lucidus. Not common. Don Bridge, and at Nether Banchory; Den of Leggart.

„ radiatulus. Not common. Among decayed leaves at Nether Banchory and banks of Don.

„ alliarius. Abundant on banks among mosses in woods, in almost every situation.

„ crystallinus. Not common. Among moss on the stumps of fallen trees, at Nether Banchory, Dee and Don banks.

„ purus. More common than the last, in the same situations.

Vitrina pellucida. Common. This may be found in vast numbers under stones with the animal, and which seems to be destroyed by Coleopterous insects.

Succinea putris. Abundant among the herbage on the sides of marshy places, ditches, &c.

„ Pfeifferi. Rare, in ditches.

Bulimus lubricus. Common.

„ obscurus. Rare, among the ruins of Dunottar Castle.

Pupa umbilicata. Common.

„ marginata. Not common. Found on the sand-hills in the link between the Dee and Don. More plentiful in some seasons than in others.

Vertigo edentula. Rare. Found at the roots of ferns, sometimes on the fronds.

Clausilia nigricans. Common, but rather local; at the foot of rocks some distance South of the Bay of Nigg.

Balea perversa. Rare. Among the ruins of Dunottar Castle, and at the foot of a wall behind Old Macher cathedral; Old Aberdeen.

Charychium minimum. Rare. Rubislaw Den.

Limnæus pereger. Common.

„ „ var. *ovatus.* Abundant in Loch Skene; pools on the banks of Dee.

„ „ var. *limosus.* Common in marshy places, at Old Aberdeen and Bay of Nigg.

„ palustris. Not common. In pools and streams, near the sea, and in the low districts.

„ truncatulus. Rare. Found in the pool in Belhelvie Links, by my friend Mr. Wilson; Hilton quarries. Of this shell there many varieties, depending much on the situation.

Physa fontinalis. Common: in ditches at Nether Banchory; on Lemna minor and Potamogetons in the ditches or streams that run into the Dee and Don.

Planorbis vortex. Common; on aquatic plants, as Potamogetons.

„ spirorbis. Abundant in a ditch at Banner-mill, and in the links, where it is found on Poa fluitans, Ranunculus aquatilis, &c.

„ contortus. Not common. In ditches and pools, upon grass and decayed leaves, in the Old-town links and at Nether Banchory.

„ albus, *Flem.* Rare. On the leaves of Potamogetons in the canal near Aberdeen.

Ancylus fluviatilis. Common on stones in streams, and the rivers Dee and Don.

Cyclas cornea. Rare. A beautiful specimen has been found by Mr. Ewan, in a pool at Morrison bridge.

Cyclas flavescens, *MacGill*. Common; in the Loch of Skene, ten miles to the west of Aberdeen.

Pisidium Jenynsii. Common in all clear stagnant water, both in pools and ditches.

„ pulchellum. Common in muddy and sandy pools and ditches; and most beautiful specimens occur among Sphagna in pools of water among the hills.

„ nitidum. More rare, but occurring with the last.

„ pusillum. Abundant in many places, as in a mill-pond near the new bridge of Don.

„ amnicum. Rare. In the canal and the Hilton quarries, *Mr. Clark*.

Anodon anatinus. Common; in the St. Fergus canal, Banff.

Alasmodon margaritiferus. Common in the Dee and the Don, and discovered in great plenty in the burn of Canry, at Upper Banchory, by Mr. Ewan.

All the above have been seen by myself during the last two or three years, and all occur in Aberdeen and Kincardine shires, with the exception of Anodon anatinus, which as yet is only found in Banffshire.

In conclusion I may mention that Zonites pygmæus, Planorbis imbricatus, Paludina vivipara and Bithinia tentaculata have been found here, but not alive, and consequently are not included in the list.

James Taylor.

Pitmuxton, Aberdeen, March 3, 1853.

[The following note from Mr. Warington appeared on the wrapper of the 'Zoologist' for April, 1853.—*E. N.*]

Apothecaries' Hall, March 26, 1853.

My dear Sir,

In recapitulating my experiments of 1849 and 1850,* in January, 1852,† I stated that I was carrying out a similar investigation, in the small aquarium, with a confined portion of sea-water, employing some of the *green* sea-weeds as the vegetable members of the series, and the common winkle or whelk to represent the snail as a scavenger; and in September, 1852,‡ I mentioned that I had succeeded perfectly in my endeavours, having had the sea-water quite clear and sweet for upwards of six months, and had for some time maintained the healthy life of several sea anemonies, &c. Since this period I have received from Mr. Gosse, and several friends, numerous additional subjects to experiment with, which have passed through the trying period of winter with complete success.

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* 'Quarterly Journal of the Chemical Society,' iii. 52. 'Zoologist,' p. 2868.

† 'Gardener's Magazine of Botany and Garden Companion,' for January, 1852.

‡ 'Annals and Magazine of Natural History,' x. 280. 'Zoologist,' p. 3633.

Now as I have heard that other investigators are experimenting with sea-water in these miniature ponds, I am anxious to take the earliest opportunity of communicating for their benefit the kind of sea-weeds which I have found most beneficial for the purpose of maintaining the water in this healthy state, so that they may avoid the difficulties I had myself to encounter in first commencing the experiments. The plants which appear to answer best are Ulva latissima and other sea varieties of Ulva, the Enteromorphæ, and Zostera marina, particularly the latter. The observations which I have been able to make on the numerous inhabitants of my aquarium, I hope to find time to state in detail before long.

I remain, Yours very truly,
Robert Warington.

E. Newman, Esq.

Note on the supposed Total Abstinence of a Spider.—Mr. C. R. Bree's observations (Zool. 3800) on my communication relative to the "abstinence of a spider" (Id. 3766), have much pleased me by the candid and philosophical spirit in which they are written; and I can assure him that a feeling of the difficulty of accounting physiologically for the so greatly increased bulk of the spider, was my sole inducement to communicate the facts of the case, through the medium of the 'Zoologist,' to those who, from their greater and more scientific acquaintance with the physiology of animals, might better than myself offer some solution to the apparent mystery. And, assuming these facts to have been really, and as they appeared to me on close observation at the time to be, correct, to throw out the fair deduction from them, "That the spider existed and even throve without material sustenance during the time in question," as a point for discussion, to be established or the contrary, according to evidence; and if established, then, how far it could be accounted for by the economy or organization of the animal under consideration, or by analogy of other examples of organized life, (supposing in the course of time and observation such analogous examples to arise). I thus recorded my observations in the pages of the 'Zoologist,' as a "tittle" of evidence towards the discussion of this point, and not as "a miracle," nor as set up in opposition to the principle, "Ex nihilo nihil fit;" and I do not hesitate to say that I can easily and without any violence to that principle conceive it to be established (if indeed it be not already so), that some living creatures can increase to a certain extent, within a limited time, without having during that time received any sustenance, in the same way as an elm tree uprooted, or large branch broken off, in the spring of the year, will, during a certain time afterwards, push forth leaves and small branches. I am perfectly aware that in this case the leaves &c. are the result of the sap contained in the branch at the time of disruption; but so, in the case of an animal, may the increase be the result of prior aliment, enabling it to exist and thrive to a certain point, which passed, it would of necessity die, as also do the leaves &c. of the tree. This was all I intended to convey in my remarks; and if my words there seemed to convey more, it was entirely contrary to my intention. I here also take the opportunity of acknowledging the justness of the remark by Mr. Browne (Zool. 3845), that "it would be as difficult to account for the appearance of the Apteryx in Anglesea," as for the physiologist to account for the increase of my spider to "ten times its original bulk without material sustenance;" which, however, I conceive only goes to *the extent of the increase*, not to *the possibility of any increase whatever*. I have, at the risk of being thought needlessly prolix, gone into the above explanations, to show what my views were in recording the circumstance, (Zool. 3766). But now, in justice to the readers of the 'Zoologist,' and more especially to Mr. Bree, who concludes that the spider *did* receive nourishment, though unperceived by me; as well as to Mr. Browne, who is alarmed at the *extent* of the increase, and, I trust, to their entire satisfaction, I am enabled to state that they are completely borne out in their conjectures, by the result of further observations made on the subject since my communication: for within the last month, not only has a small moth made its appearance within the bird-case, and is now dead in the web, but also a host of minute spiders, probably the progeny of the one I first observed there, and which died last summer. From this I am perfectly ready to acknowledge that the spider, in all probability, *did* receive sustenance, which must, as Mr. Bree suggests, have been inclosed in the case with the spider, since the case is at this moment perfectly free from crack or crevice, although, as I stated, the fact of its eating anything, or of there having been anything in the case for it to eat, entirely escaped my observation, though repeatedly and searchingly directed to what appeared to me a very unusual circumstance. — *Octavius Pickard-Cambridge; Bloxworth House, April* 2, 1853.

[The following is the account from the 'Banffshire Journal,' alluded to in Mr. Pickard-Cambridge's previous communication, (Zool. 3766).—*E. N.*]

"*A Spider living Twelve Months without Food.* — Mr. T. Edwards sends us the following curious particulars: — 'Having mounted and arranged a number of birds, I put them in a case. The case had lain aside for a short time previous to the front, which is of glass, being put on; and during this time a spider (*Aranea domestica*), doubtless on the look-out for a canny nook, managed to take up his quarters among the birds, and was not observed until after the front had been attached, and the whole finished. It was a little vexing to see the unwelcome intruder parading about in the box, as regardless of its contents as if they had been as many old rotten sticks. He walked over one bird, then over another; now in the bottom of the case, then again on the back, sides, &c., until he at last became stationary in one of the corners. Being an eyesore in such a place, he would have been summarily dealt with, but for the case being a close one, and all but hermetically sealed, the re-opening of which would have cost some trouble, and not a little risk. The consequence was that the little creature was permitted to remain, in the hope that want and the confinement would soon terminate his existence. In this, however, I have been mistaken; and from being looked upon as a grievance, he ultimately became an object of some interest, and has in consequence already more than fully repaid the stance which he occupies. Towards noon of the second day of his incarceration, he commenced operations in the corner already alluded to, and by breakfast-time of the day following the web was completed. The little artizan was then observed to walk slowly and very sedately all over the newly-formed fabric, seemingly with the view of ascertaining if all was secure. This done, the aperture was next examined, and with more apparent care than was bestowed upon the rest of the structure. This wonderful mechanical contrivance, which serves at least the fourfold purpose of storehouse, banqueting-hall, watch-tower, and asylum in times of danger, being found all right, the artificer then took up his station within it, no doubt to await the success of the net which he had spread, and whence, had fortune proved kind, he would have boldly rushed to secure the struggling prey. It happened, however, that no other insect had the misfortune to be imprisoned along with himself, and, as already hinted, none can get in. There, on his watch-tower, he still remains as motionless as a statue. There has the patient little animal continued for the space of twelve long months, having taken up his position on the 3rd of October, 1851, and kept watch and ward without having ever moved night or day, as far as could be observed, except on three occasions, which, however, were so trifling, that they are not worth mentioning. But this is not all, as will be anticipated. The animal being still alive, it follows, as a natural consequence, that life has been sustained during all this time without the least particle of food having been obtained. The little creature is still as life-like as on the first day of his imprisonment.' This circumstance is not a little curious, and, to the naturalist, the fact must be of some value. Mr. Edwards adds that the longest period during which, so far as he can learn, spiders have been ascertained to have lived without food, is ten months." — *From the 'Banffshire Journal,' October*, 1852.

Some Remarks on the Habits of the Hesperidæ. — Most writers on Entomology state that the majority of the Hesperidæ rest with the fore-wings vertical, while the hind ones are horizontal. This is certainly the case with many of the species with which we are best acquainted; but in the great majority of exotic species the wings are carried either vertically, as in most other diurnal butterflies, or expanded horizontally, as in many Geometræ, and occasionally some Nymphalidæ. I do not remember having seen any of the Hesperias carry their wings deflexed, as the Castnias and Noctuidæ generally do. During my residence in Brazil, I noted accurately these various modes of repose in all the species I captured, but most of the ticketed specimens and my notes referring to them are unfortunately lost. I am inclined to think, however, that this character will serve to divide the family into two, or perhaps three, natural groups. On looking over my own collection, I find about 150 species which sit with their wings erect; about 50 with expanded wings; and but very few, which I cannot now determine with certainty, which carry the fore-wings only erect. On referring to Messrs. Doubleday and Westwood's work on the genera of butterflies, I find that the species of the first division, such as Antoninus, Rhetus, Exodeus, Amyclas, Gnetus, fulgurator, Celeus and Proteus, belong to the genera Pyrrophyga, Ericides, Goniurus and Goniloba, and some species of Pamphila, as P. Epictetus. Of the second division, such as Thyreus, Oreus, Herenius, obscurus, &c., to the genera Pyrgus, Nisoniades and Achylodes. Those of the third division appear to belong to the genus Pamphila, but certainly do not include all the species. Some of the long-tailed species, such as Goniurus Proteus &c., sometimes expand their wings in the morning sun, as do some of the Epicalias, Ericinas, and several others; but their true habit is to rest with their wings erect. I once bred a species of this family, which offered some peculiarities. The larva was long, cylindrical, smooth, pubescent, and green; it fed on the plantain. The pupa was suspended horizontally beneath a leaf of the same plant, and braced; it was pale green, and the head pointed; but the greatest peculiarity consisted in the spiral tongue being contained in a free external sheath, forming a straight bristle longer than the whole body of the pupa. The perfect insect was one of those with vitreous spots, closely allied to Gouiloba Antoninus. — *Alfred R. Wallace; March*, 1853.

Note on Vernacular Names.—Having lately had the good fortune to meet with the 1st and 2nd volumes of the 'Entomological Magazine,' to complete my set, I observe in vol. i. p. 317, the following: — "Rather Extraordinary.—On Sunday, as Mr. Wm. Ferris, of Pennywell Lane was in his garden, about 11 o'clock in the forenoon, millions of insects of the caterpillar species, forming quite a cloud which darkened the air, passed over him from West to East.—*Bristol Mercury.*—!!! Ed." Had the worthy Editor of that volume only known that the common May-beetle or chaffer (*Melolontha vulgaris*) is called by the name of "the caterpillar" in this part of the kingdom, it would have eased him of a considerable portion of his doubts as to the correctness of the statement; although I believe it is very unusual for such extensive flights to take place in the middle of the day, the close of the day being much more congenial to their habits. While upon the subject of this insect, I may as well remark that last summer, on several successive evenings (very sultry ones), from about sunset to the end of the twilight, I watched them coming from a pasture field on the opposite side of the road from a row of houses, (the road running nearly North and South). They undeviatingly flew from about North-east by East to South-west by West; not an individual varied from the assigned course. They averaged about one every second that passed over the house I stood in front of: how far they extended right and left I cannot say; I often observed from four to six on the wing at the same time. The flight was direct, without any wavering one way or the other; a few that seemed not to have taken a sufficient angle of elevation to enable them to clear the roof, struck against the upper part of the house, but soon recovering themselves, they followed the same course as their companions had taken. But to return to the previous subject: — so completely has the Melolontha possessed itself of the name "caterpillar," to the exclusion of its rightful owners, the larvæ of the Lepidoptera, that when I have been speaking to persons not acquainted with insect metamorphoses about the changes they undergo, if I happened to mention a caterpillar, I have been obliged to explain that it was not the insect or beetle that children fasten with a thread to make it spin, but the *grub* that devours cabbages or other plants that was meant. The name by which the Lepidoptera are commonly known to the Welch is "Pillipálla," an evident corruption of the Latin Papilio.—*James Bladon; Pont-y-Pool, February* 14, 1853.

Proceedings of the Zoological Society.

Tuesday, March 8, 1853.—Dr. Gray, Vice-President, in the chair.

The Secretary read a letter which had been addressed to Dr. Gray by Mr. Oswell, respecting the discovery of a rhinoceros by himself and Capt. Vardon, in the country about the river Limpopo, which they at the time considered to be a new species, as it probably is. The horns of this animal, brought home by Col. Steele, and about to be presented by him to the British Museum, were exhibited to the meeting. Their peculiarity consists in the forward direction of the lower horn, the end of which was evidently worn away by contact with the ground in feeding. In a note attached to Mr.

Oswell's letter, Dr. Gray stated that Col. Steele had also brought home the horns of a new species of Tragelaphus, allied to T. Euryceros and T. Angasii. He proposed to name it T. Nakong.

Dr. Crisp exhibited the skin of a horn-bill, of which the neck-feathers were covered with the eggs of an apparently new species of Acarus. Dr. Crisp observed that the eggs of Acari are always deposited beyond the reach of the beak in birds. Both eggs and perfect insects were exhibited under the microscope, and the subject was further illustrated by elaborate drawings.

Dr. Crisp afterwards read a paper on the habits and anatomy of the wolf-fish, containing, among other interesting information, a careful explanation of its dental system, and of the intestinal canal.

Mr. Gould exhibited and described the nest and eggs of Menura Alberti, from specimens transmitted to this country by Mr. Willcox, of Sydney. The structure of the nest fully corroborated the views which Mr. Gould had developed many years since as to the position of Menura among the Insessorial birds, in contradistinction to those of Temminck, Illiger, Swainson, and Lesson. The Menura, according to Mr. Willcox, only lays one egg, but on that point there exists some doubt. The egg of the old species, Menura superba, is still unknown.

The Secretary read a note on the capture of Delphinus Orca in South Greenland, by Mr. Rehüller, of Thorrhavn, which was communicated by Sir W. Trevelyan, to whom it was addressed. It contained the description of a method of capturing these animals with a net, which had proved so successful, that the number taken in Westmanhavn alone, since 1843 (when the net was first used), amounted to 2200, whereas between 1843 and 1819, 280 only had been secured. As each animal is taken to average 30 gallons of oil, this branch of industry has produced upwards of £4000 sterling to the inhabitants of Westmanhavn in the last ten years.

Tuesday, March 22, 1853.

Mr. Gould exhibited to the meeting four species of Tetraogallus, including a new one from the collection of the Hon. East India Company, obtained in Ladak, which differs essentially from the older species by its smaller size, its orange legs, and its sides being streaked with black instead of tender chesnut. The name proposed for it is T. Thibetanus. The whole of the species live in temperate or snowy regions of the Himalaya and Caucasus; and the fine health in which T. Caucasicus has for several months been preserved in the Society's menagerie, would indicate that the whole of them might be acclimated in the Scotch and Cumberland mountains.

Lieut. Burgess exhibited an extensive series of drawings of the eggs of Indian birds, made by himself.

Mr. G. R. Gray communicated the descriptions of two new species of Ptilonopus in the national collection, the habitat of which is unknown. These extremely beautiful birds were characterized under the names of Pt. chrysogaster and Pt. purpureocinctus.

Mr. Westwood directed the attention of the meeting to a series of most interesting drawings illustrative of the transformations of several genera of Australian insects, from the able pencil of Miss Scott, of Hunter's Island, New South Wales.

Mr. Cuming communicated a paper on twenty-three new species of land shells from his own collection, by Dr. Pfeiffer. These shells were referred to the genera Helix, Bulimus, Cyclostoma, Cataulus, Pupina, and Helicina. Mr. Cuming also communicated the descriptions of three new species of Limnæacea by Dr. William Dunker.—*D. W. M.*

Proceedings of the Entomological Society.

April 4, 1853.—Edward Newman, Esq., President, in the chair.

The following donations were announced, and thanks ordered to be given to the donors: — The 'Zoologist' for April; by the Editor. The 'Athenæum' for March; by the Editor. The 'Literary Gazette' for March; by the Editor. The 'Journal of the Society of Arts;' by the Society. 'On two new Subgenera of Calanidæ,' by John Lubbock, Esq., F.Z.S., &c.: by the Author. Hewitson's 'Exotic Butterflies,' part 6; by W. Wilson Saunders, Esq. 'Descriptions de trois Coléoptères:' 'Descriptions des Coléoptères nouveaux:' 'Rappel des Coléoptères décrits par Palisot et Beauvais:' all by M. A. Chevrolat, and presented by the Author. Specimens of Coleopterous larvæ with a Sphæria attached; by T. J. Stevens, Esq., Bogotà.

T. H. Langcake, Esq., Beeston, near Leeds, and F. Bates, Esq., Leicester, were elected Subscribers to the Society.

Mr. T. Desvignes exhibited a fine Chœrocampa Celerio, taken by Thomas Thompson, Esq., at Welton, near Brough, Yorkshire; also a new British bee, — Anthidium maculatum, taken in Scotland by E. C. Buxton, Esq.

Mr. F. Smith remarked that this bee was common in the South of Europe; and it was curious and interesting, if no mistake had occurred, to find it first captured in Britain so far North as Scotland.

Mr. Bond exhibited a Steropus madidus, with a Filaria about 6 inches long protruding from the abdomen; also a Filaria, 15 inches in length, extracted from another specimen of the same species of beetle.

Mr. Douglas exhibited some young larvæ of a Solenobia, produced from eggs laid by females without male intercourse. Last July, at Charlton, he found larvæ moving about on the stem of a poplar tree; he put some into a box with a piece of the bark, and forgot them until recently, when he found they had produced apterous females only, and from them had been developed the larvæ now exhibited, which had died in the box where they were born.

Mr. F. Smith exhibited some Bruchi reared from seeds of Sophora myrtillifolia from the Cape of Good Hope. Almost every seed had contained a larva of the Bruchus, from the greater number of them, however, only a parasitic Chalcis had emerged.

Mr. S. Stevens exhibited some fine insects, chiefly Lepidoptera, just received from Mr. Bates, on the Amazon River.

The following extract of a letter from Mr. T. J. Stevens, Corresponding Member, at Bogotà, was read.

"Having seen in the hands of my friend, Mr. Mack, our Consul, a dead larva with a fungus growing from the body, I was much struck with the curious appearance, and with some trouble procured specimens from Mr. Haldane, of Palmar, on whose estate they are found. I have forwarded to you four specimens, and now give you extracts from the information I received from Mr. Haldane, who is no naturalist.

"'The grub is in its glory and is decidedly brought to life in decayed timber. It is never to be found on trees, but underground, and in timber pulverously rotten. It does not attack the potato, and is to be found on lands where fern has been extirpated, but the roots still left behind in a state of decomposition. When found in the hard state it is always dead. Such specimens are scarce, and although I know where to seek, the difficulty is to find. Eight years elapsed after the first specimen was brought to me, ere I could meet with a second; but in a living state they are known to every clod-breaker. The body of the grub, when found in the hard state, does not become putrid in keeping, like other insects in general. The first specimen brought to me had a green bud protruding from the mouth, resembling a green pea when it first bursts the soil.'"

Mr. Andrew Wilson, of Edinburgh, sent a communication recommending chloroform as an agent for disabling the larger Lepidoptera before they are killed or pinned, instead of sulphur or German tinder; and stating that no danger to the person using it need be apprehended.

The Rev. Joseph Greene communicated the following corrections of his note read at the March meeting: —

"Since I wrote to you, I have been informed that the insect taken by Dr. Ball was Deilephila *lineata*, and not *Euphorbiæ;* and that the locality was *Youghal*, in the South of Ireland. In point of rarity, I believe there is not much difference between the two; but I thought it better to rectify the error. There is, likewise, one other slight mistake, which I should wish to correct. Instead of, in my collection are *two* specimens of Euphorbiæ and *one* of Galii, it should be, *one* of Euphorbiæ and *two* of Galii."

The following notes by the Rev. Joseph Greene, "On digging for pupæ of Lepidoptera," were also read: —

"Having met with considerable success in my search for pupæ of Heterocerous Lepidoptera, it has been suggested to me that a few remarks relative to localities, &c., might be useful to other collectors. This method of obtaining insects recommends itself to the entomologist in three ways. 1. As an amusement during the winter months. 2. As enabling him to procure fine specimens without the trouble of rearing. 3. As occasionally rewarding him with rare species, curious varieties, and others, which, from their habits or forms, are difficult to procure in the perfect state, *e. g.*, apterous or partially apterous females. During the past winter, I have found the pupæ of all the apterous females, except Nyssia zonaria and Cheimatobia borearia.

"Wherever in the following remarks any statement is made as to certain circumstances being uncommon, usual, or invariable, I wish it to be distinctly understood that they are so, merely so far as my own personal experience goes.

"The only instrument I use is a common garden trowel. The form is immaterial: perhaps a rounded blade is best, as passing with greater ease between the roots.

"The trees which I have found the most productive are the following: — elm, oak, ash, poplar, beech, and willow. I never found anything at birch, maple, or chesnut. Perhaps a short list of a few of the pupæ obtained at those trees may prove interesting.

"*Elm.* — Smerinthus Tiliæ (why this insect should be called the *lime* hawk-moth I know not; I have found dozens of pupæ at the roots of elm, but not one at lime), Petasia cassinea, Tæniocampa rubricosa, T. Populeti, T. munda, Cosmia diffinis, Xylina semibrunnea, Anisopteryx Æscularia ♂ and ♀, Hibernia leucophæaria ♂ and ♀, H. aurantiaria ♂ and ♀, &c.

"*Oak.* — Considering the number of larvæ that feed upon oak, I have been surprised at finding so few pupæ at it. This, I suppose, is partly owing to the fact, that a considerable number of the insects whose larvæ feed upon oak, do not pass the winter in the pupa state. However, when you do succeed in getting one, it is generally good; and I have found Notodonta trepida, N. Chaonia, N. Dodonæa, Geometra Papilionaria, Biston Prodromaria, &c. I was much surprised to find, on two occasions, the empty cocoon of Cerura Vinula on the trunk of an oak.

"*Ash.* — Pœcilocampa Populi, Acronycta Ligustri, Geometra Lunaria, G. illustraria, &c., &c.

"*Beech.* — This and the poplar are the best trees. At the former I have found Lithosia rubricollis, L. aureola, Orgyia Coryli, Notodonta Camelina, Tephrosia consonaria, &c.; at the latter, Phragmatobia mendica, Pœcilocampa Populi, Cerura bifida, C. furcula, Ptilodontis palpina, Notodonta Dictæa, N. Dictæoides, Clostera curtula, Ceropacha Or, C. ocularis, Ypsipites ruberaria, &c.

"And now a word with regard to *localities.* Meadows and parks with scattered timber trees are decidedly the best localities: being near a wood seems no advantage. It is, however, a very curious fact, that the nearer these meadows or parks are to inhabited places, as towns, villages, or even a single farm-house, the more abundant are the pupæ. I have observed this repeatedly, and in the most marked manner. I may mention two examples. Nine specimens of Notodonta Dodonæa were all obtained at the roots of an oak about a dozen yards from a farm-house; and though I searched upwards of forty trees in the neighbouring fields, I could not find a pupa of any kind whatever. At the same tree I found Biston Prodromaria and Tæniocampa Gothica. Again, the winter before last (1851-52), being in Dublin, I went to the Phœnix Park to dig. So long as I continued near the city, I found the commoner sorts of pupæ in plenty; but the further I retired from it, the scarcer they became: until, at about three miles distance, I could not find one. I should be very glad to see some explanation of this curious circumstance. Perhaps it may partly be accounted for on the supposition that the parent moth is attracted by the lights in the houses, and lays her eggs on the neighbouring trees.

"Next to parks and meadows I place woods. Searching in woods, however, is a tedious and fatiguing affair, and to search successfully requires some experience. Perhaps the following hints may prove useful. It is in vain to examine the *dense* portions; it is equally vain to dig at the *roots* of trees, with few exceptions: and you will rarely find anything, unless upon trees of considerable growth. The thick moss which collects about the trunks and roots, is the part to be examined. Bombyces are generally (almost invariably) found under the moss which covers spreading *roots*, and not on the trunks. The best localities in woods are the borders and open places. It is curious that such places when elevated, or facing the North, are generally the most productive.

"There remains one other locality — *hedge-rows.* These may be dismissed in a few words: it is perfectly useless to try them. I do not think I have found a dozen pupæ in such places: *why* it should be so I cannot tell. There are, of course, other localities, but as I have never tried them, I am unable to give any opinion on them.

"The next point which may be considered worthy of notice, is the mode of search. This, of course, varies according to locality. In digging, it must be borne in mind that all pupæ are close to the trunk of the tree, seldom more than 2 inches distant. Frequently the trunk of the tree forms one side of the cocoon, especially the cocoon of such insects as spin. Again, pupæ lie close to the surface of the earth, (I have seen those of Smerinthus Populi and S. Tiliæ half ont of the earth); the larva of Calocampa exoleta is the only one I know of that goes to a considerable depth. Insert then the trowel about 3 inches from the trunk, to the depth of 2 inches or so; then push it to the tree and turn it up. If the soil be dry and friable, without grass, knock it gently with the trowel, which will be sufficient. If, however, there be grass, you must proceed more cautiously: take up the sod in the left hand, knock it very gently with the trowel, and those pupæ which merely enter the ground will drop out. To find those which spin, you must carefully examine the sod, tearing the roots of the grass asunder. These are, of course, much the most difficult to find, the cocoons being generally of the colour of the earth. I may here remark, that it is useless to try sticky or clayey ground, the caterpillars being unable to penetrate it. In searching under moss, the best plan is to loosen the edge, then to tear it gently off, observing whether any pupæ fall. Look at the trunk to see if anything adheres to it, and then carefully examine the moss itself. Experience alone will enable you to detect a spun cocoon.

"Searching under loose bark requires no comment: one observation, however, on the Ceruræ. I have heard it mentioned that the pupæ of the *kittens* are to be found near the *roots*: my experience goes to prove quite the reverse. Every one who has looked for them knows the extreme difficulty of detecting them. I found fifteen last autumn, and they were all, without exception, at least 2 feet from the ground. The puss moth certainly forms its cocoon near the ground generally, but not the kittens, I think. Though not connected with the subject of pupæ, I think it may be useful to mention that the larvæ of the genus Cerura are always found on the *upper* side of the leaf, generally about the centre.

"If I were asked which are the most likely trees, I should say those whose branches spread out towards the ground, since moths seldom fly to the high branches; those whose roots form an angle filled with loose dry earth, especially when covered with grass; and lastly, those which have a thick loose moss upon them. Nothing however can be more uncertain than any rules in this matter. You will perhaps see ten elm trees, to your eye exactly alike: at nine you may find nothing; at the tenth, possibly twenty or thirty pupæ. I remember, on one occasion, trying a number of ash trees, without the slightest success, and was about to give up the search as hopeless, when I resolved to try one more. At that one I found forty-six pupæ of Ennomos illunaria, and three of Pœcilocampa Populi!

"No pupa-hunter can hope for success, unless he have a good stock of patience and perseverance. He must not mind cold hands, wet feet, or an aching back; for although these are drawbacks, yet is the pursuit (to me) quite exciting, when successful, and it will reward the seeker, not merely of Lepidoptera, but also of all the other orders of insects.

"The longer I continue to dig for pupæ, the more convinced I am that one of the causes of the periodical uncertainty in the appearance of many insects is their inability, under certain circumstances, to force their way through the earth. As I have remarked, on a former occasion, severe frost following protracted rain will have this effect, as also will great heat. I once had a singular illustration of this. Digging at the roots of an elm, I turned up a large lump of baked clay. On breaking it, I found no fewer than sixteen pupæ of Tæniocampa instabilis imbedded in it: the shells were quite brittle, and on opening them I found the insect perfectly developed, but dead. Another cause which tends to make insects scarce or uncertain in their appearance, is, of course, the Ichneumon, that foe to the entomologist. The havoc committed by them would appear incredible to those who have not witnessed their destructive powers as I have, while digging for pupæ. Take, for example, Lithosia rubricollis. At Guiting I found the pupæ of this insect by hundreds. It is no exaggeration to say that three-fifths at least of these had been destroyed by Ichneumons. Their empty pupa-cases, with the circular opening always made by the Ichneumon, lay scattered about by dozens; and I have repeatedly liberated the parasite itself in turning up the sod.

"It may be asked—'How do you know the species of those pupæ which are as yet undisclosed?' To this I would answer, chiefly by experience. As a general principle, it is not difficult to decide to what family a pupa belongs. A Bombyx may sometimes be known at once by its form, which nevertheless varies considerably. Moreover, all Bombyces form a web or cocoon, at least all those with which I am acquainted in the pupa state. This, however, is by no means a decisive criterion, as some Noctuæ (Acronycta) and Geometræ (Tephrosia) do the same. Still, I think a Bombyx may be known with tolerable certainty, if attention be paid to the following peculiarities:—1. A web or cocoon. 2. The bulky form of the pupa, which is almost invariably either of a nearly uniform thickness throughout, and round, or else stout to the middle and rapidly tapering to a point. 3. The form of the antennæ (which is an excellent criterion) and the invariable shortness of the wing-cases: to this I call particular attention. The genus Lithosia, of which, however, I know only two species in the pupa state, is an exception to some of these rules. Examples of the rounded form will occur to every one, as Orgyia potatoria, Cerura bifida, C. furcula, &c. As an example of the tapering form I may mention Orgyia Coryli. Some of the genera, also, among the Bombyces may readily be distinguished by the form of the pupæ; I may mention in particular Notodonta. I think I could instantly detect a pupa of that genus from its form. I have either reared or found in pupa, Notodonta Camelina, Chaonia, Dictæa, Dictæoides, Dodonæa, Dromedarius trepida and Ziczac. In all these (with the exception of Camelina, which slightly differs) the pupa is round, of a nearly uniform thickness, rounded at the anal extremity, and ribbed.

"The genus Lithosia is quite different. The pupæ which I have had (L. rubricollis and aureola) are short and stout, expanding somewhat in the middle, and tapering slightly towards each end.

"The Geometræ are easily distinguished by their size and slender shape, except the genera Biston, Phigalia, Nyssia, and part of Ennomos. They are, moreover, the most active pupæ, except perhaps some species of the genus Acronycta.

"It seems to me quite impossible to assert, with any degree of certainty, as to what subfamily or genus of Noctuæ or Geometræ a pupa belongs to, or to assign any data by which to decide, except, perhaps, experience and observation; and even then, owing to the great resemblance of many species to each other, one is constantly liable to error. The tree at which a pupa is found will sometimes assist, as showing the food; but even this is uncertain, as I have found the pupæ of insects, whose larvæ are supposed to feed on only one particular tree, at many others. I believe, for example, that the larva of Acronycta Ligustri is said to feed on privet; I never took it there, but have found the pupa under moss on willow, beech, ash, and oak."

Mr. G. R. Waterhouse read a revision of the synonymy of the British species of the genera Hydrochus and Ochthebius, founded upon an examination of the specimens in the collection of the late Mr. J. F. Stephens, now in the British Museum; the result being that in the majority of instances the names given or adopted by Mr. Stephens, and for which others had been substituted on the continent, would remain.

Mr. Westwood hoped that advantage would be taken of the acquisition by the Museum of Mr. Stephens's collections, and the facilities of investigation thereby afforded, to work up other genera or groups of our indigenous insects. He was convinced that, as in the memoir just read by Mr. Waterhouse, one result would be the vindication of Mr. Stephens's reputation from the aspersions which, he was sorry to say, had recently been cast upon it abroad.

Mr. Westwood read a memoir intituled "Descriptions of new Species of Coleoptera from China and Ceylon," illustrated by figures of the principal species.—*J. W. D.*

Proceedings of the Microscopical Society.

January 26, 1853.—George Jackson, Esq., President, in the chair.

A paper by the Rev. Wm. Smith, "On the Stellate Bodies occurring in the Cells of Fresh-water Algæ," was read. After referring to the papers by Mr. Shadbolt, "On the Sporangia of some of the filamentous Fresh-water Algæ," published in the 3rd volume of the 'Transactions of the Microscopical Society,' the author stated that the stellate bodies which form the subject of this paper, are not, in his opinion, the result of conjugation, as supposed by Mr. Shadbolt, but of some disease affecting the cells in which they are found, being, in fact, bodies of a parasitic, or, perhaps, of a fungoid growth, consequent upon the degeneration of the cell-contents. To these star-like bodies he proposes to give the name of Asteridia, and adduced various facts which he considered as confirmatory of the opinion he had brought forward, of these bodies being examples of a singular and far from common monstrosity, produced by a peculiar disease affecting that curious and interesting class of plants.

A paper by Professor Quekett, "On the presence of a Fungus, and of masses of Crystalline Matter in the interior of a living Oak Tree," was also read. Mr. Quekett stated that while dining with a pic-nic party in Marlborough Forest, in the immediate vicinity of the King Oak, a large limb of a neighbouring oak fell with a loud crash. On investigating the fractured portion, which was nearly 3 feet in diameter, the centre was seen to be covered with a white filamentous mass, studded here and there with numerous crystals. When examined microscopically, the white mass was found to be made up entirely of the fibres of a minute fungus, many spores of which were adherent to the fibres. The crystals were mostly of a tabular form, and were ultimately connected with the fungus, their composition being probably some salt of lime. No indications of decay were to be observed on the outside of the branch, nor any external wound whereby the spores could have gained access to the interior. All the parts of the wood in the neighbourhood of the fungus were rather softer than usual, and the woody fibres having been displaced by the growth of the filaments, cavities were formed, and in these the crystals were the most abundant. The occurrence of a fungus in the heart of a living oak tree, the author believed had never yet been recorded, and its presence in this instance might lead to its detection in oak timber previous to its being employed for building purposes.

March 23, 1853.—GEORGE JACKSON, Esq., President, in the chair.

A paper by Dr. Wm. Gregory, F.R.S.E., Professor of Chemistry in the University of Edinburgh, intituled, "Notice of a Diatomaceous Earth found in the Isle of Mull," was read. The author commenced by stating that this earth was discovered about two years ago by the Duke of Argyll, who gave a short account of its geological position to the Royal Society of Edinburgh. It constitutes a bed, resembling marl in appearance, lying in a rough piece of ground at Knock, near Aros, between Loch Baa, a fresh-water lake, and the sea. It is extremely rich in Diatomaceous remains, containing (according to a synopsis sent with the paper) various species of the genera Pinnularia, Navicula, Gomphonema, Amphora, Stauroneis, Cocconeis, Durirella, Cymbella, Himantidium, Tabellaria, Epithemia, Eunotia, Synedra, Fragilaria, and Orthosira. The most remarkable for their abundance are the genera Pinnularia, Navicula, and Stauroneis; and many of the species of these and of the other genera are of great rarity. After giving the chemical analysis of this earth, the Professor concluded by stating that the Mull deposit appears to him to be richer in Diatomaceous species, and perhaps also in genera, than any other known deposit, there being at least sixty species and sixteen genera enumerated as having been found in it. A portion of the earth, and some slides containing specimens, accompanied the paper.—*J. W.*

Proceedings of the Royal Physical Society of Edinburgh.

Saturday, February 12, 1853.—HUGH MILLER, Esq., President, in the chair.

The first communication laid before the meeting was—"On some Insects from the Rocky Mountains, received from the Botanical Expedition to Oregon under Mr. Jeffrey," by Andrew Murray, Esq., W.S. After alluding to the principal object of the Expedition, and describing some of the new Coniferæ, the seeds of which have been sent home, Mr. Murray said that when the Association was first started, he suggested to the Committee of Management that an addition might be made to its funds by admitting a limited number of entomologists, to receive beetles instead of seeds. In spring and early summer there would be few or no seeds to collect, while that was the very best season for insects; and at other times the collecting of the two might be made compatible, by instructing the collector to make the seeds his principal, and the insects only his subordinate object. The Committee adopted the suggestion, and the allowed number of entomologists immediately came forward. Unfortunately, Mr. Jeffrey was not an entomologist, and consequently, although he has no doubt done his best, only a very small supply of insects has yet been received. These consist of a few taken near York Factory and on the way to the Rocky Mountains, a few taken at Jasper House on their east flank, and the rest on the west flank.

Mr. Murray handed round a box containing the specimens which fell to his lot, with the insects from the different quarters placed slightly apart. Those in the first detachment were taken near York Factory (the nearest point to this country visited by

Mr. Jeffrey), and it was evident that a very great resemblance existed between them and the insects of this country. One or two British specimens of the same species were placed on coloured paper immediately after some of the American specimens, in order that the members might have an opportunity of comparing them; and in these instances they appeared to be nearly the same. There are a considerable number of insects which are common both to North America and Europe. Kirby, in Richardson's 'Fauna Boreali-Americana,' describes forty-nine beetles as identical. So far as Mr. M.'s observation went, he was of opinion that they were too close to be specifically separated; but still that there is a slight difference, which enables a practised eye to detect which is American and which is British: but such variations were looked upon by Mr. M. as the effect of the difference of food and climate. The next division in the boxes contained the insects taken on the east flank of the Rocky Mountains, and among them were two or three very beautiful undescribed Carabi. The last division comprised those from the west flank of the Rocky Mountains, most of which also are undescribed. Among them were a few specimens of a representative of our blister-fly, and next to these, on coloured paper, was placed the common blister-fly of Europe. A considerable number of these beetles was received, in fact, a greater proportion of them than of any other species; from which it was inferred by Mr. M. that they are found in large numbers, in the same way as they are in Europe, and that when a great empire shall have grown up on the west of the Rocky Mountains, the apothecaries of its cities would be supplied with this essential article from their own hills. That the species has the same blistering properties as the European insect, Mr. M. had not the least doubt: the specimens of course are too few and too valuable to allow of any of them being pounded to make the experiment, but the whole of the spirits in which the insects came home was tinged by them of their own greenish hue. The only other insects in the lot which particularly required attention, were two that were placed last, and stood a little apart. The first was a Carabus, of very curious form, or rather, perhaps, a new genus approaching Carabus, which Mr. M. proposed to call apoplecticus, from its apoplectic appearance. The other small fawn-coloured insect beside it was by far the most curious of the whole. Mr. M. believes it to be an undescribed species of a most extraordinary genus of beetles (Nemognatha, *Latr.*), of great rarity, and which he imagined few of the members had had an opportunity of seeing before. The extraordinary part of the insect consisted in the two curling appendages at its mouth. For the benefit of the non-entomological members present Mr. M. described the principal parts of a beetle's mouth in their normal state, and illustrated his description by a sketch, in which the mandibles were coloured black and the maxillæ red. In the normal state, the mandibles and maxillæ (to which Mr. M. wished in this instance to call attention), like the antennæ and palpi, as well as every other part of an insect, vary much in form; but however much they do so, they still bear the same relation to the rest of the body. In the insect exhibited by Mr. M. there appeared to be a deviation from this rule: all the other parts remained in their normal state, while the maxillæ were changed into long flexible processes (coloured blue in the sketch) projecting from the mouth. These processes appeared to be composed of a succession of rings meeting at the back. The specimen being unique, is too valuable to be sacrificed for dissection, so that it cannot be ascertained whether the processes are tubular or not, but they have every appearance of being so; in fact, they bear a strong resemblance to the trunk of an elephant, with the exception of the termination, for instead of having a mouth or opening, they appear to terminate in a point; at least, with the most powerful lens, Mr. M. has been unable to discover any opening at the end of the tube. This strange conversion of the maxillæ would find a parallel, were we to suppose an elephant with a pair of additional trunks (though impervious) issuing from its mouth, in place of the molar teeth. These observations have been made solely from the dried specimen, which occurred among the lot that fell to the share of Dr. Lowe, to whose kindness Mr. M. said he owed the specimen, as well as several others of the most valuable in the box. Dr. Lowe was at once struck with the singular appendages above described, which he found to be highly flexible when the insect was taken out of the spirits. As to their probable use, Mr. Murray said he could not even hazard a conjecture, as there is no information regarding the habits of the insect; but he might say that, to his eye, the organs appeared to have more relation to the antennæ than to anything else. A few species of this genus have been already found in North America and Mexico, as well as five or six in Africa; but they are very scarce. In the corner of the box there were a few specimens of two insects (an Anobium and a Cryptophagus) which came home alive, feeding on the pine-cones, and which, however acceptable to him as an entomologist, he (Mr. M.) could honestly say he would rather have dispensed with, for the sake of his horticultural friends, who may have suffered from their ravages.

Mr. R. F. Logan next exhibited and described various additions to the Lepidoptera of Edinburghshire, captured during the last year. After placing at the disposal of the Society, for the use of the members, a few copies of the "Catalogue of the Lepidopterous Insects of Mid Lothian," published in the 'Naturalist,' Mr. Logan enumerated twenty-eight additional species which had been unintentionally omitted from the list; among them were Agrotis Lunigera, Eupithecia palustraria, Micropteryx fastuosella, Œcophora senescens, and several other species of interest. He then read a list of twenty-five species added during the past summer (1852), and exhibited the insects, among which were Phlæodes immundana, Lithocolletis Messaniella, *Z.*, Nepticula Argyropeza, *Z.*, Gelechia politella, *Doug.*, Gelechia Anthyllidella, G. marmorea, Crambus dumetellus, C. contaminellus, and Actebia præcox. In conclusion, he brought before the notice of the Society the plan of a work which he projected, should it meet with sufficient support, to be intituled 'Illustrations of Scottish Lepidoptera,' in which he intended to figure many of the rarer and more interesting species, with details of their transformations and economy. He exhibited a number of the drawings in preparation, three or four of which would form a part, to be issued quarterly; and solicited the names of subscribers, to enable him to carry out his undertaking.

Mr. Hugh Miller read a paper "On the Red Sandstone, Marble, and Quartz-rock Deposits of Assynt, with their supposed Organisms and probable Analogues."

James Bonar, Esq., W.S., York Place, and George Meldrum, Esq., Accountant, 53, York Place, were balloted for and unanimously elected Members of the Society.

Saturday, *March* 12, 1853.—Hugh Miller, Esq., President, in the chair.

The following donation to the library was announced, and thanks ordered to be given to the donor:—'Description of a Skeleton of the Mastodon giganteus of North America:' presented by the author, John C. Warren, Esq., M.D., Boston, U. S. A.

Read, a paper by William Rhind, Esq., intituled, "Facts respecting the Laws which regulate the Distribution of Rivers and the principal Watersheds of the Earth."

Mr. R. F. Logan then read a note "On the Exuviation of Chydorus sphæricus, one of the smallest of the British Entomostraca." When first observed, Mr. L. said the specimen was swimming about along with another of the same species, but soon attached itself by the feet to portions of the decayed grass and Confervæ under the microscope, and, when disturbed from one station, speedily assumed another. At last it fixed itself on a piece of Conferva, with its back uppermost, and commenced contorting and bending itself within the shell, which speedily ruptured across the centre of the back, (as shown in an interesting drawing exhibited by Mr. Logan); and in a few seconds the animal withdrew itself, leaving the exuvia perfectly entire, with the exception of the fissure across the carapace. The whole proceeding did not last more than two or three minutes; and in the course of as many more it was swimming about again as lively as ever, a little paler and more transparent at first, but rapidly assuming its ordinary colour.

Dr. John Alex. Smith exhibited a specimen of a black-coloured duck, of which, he said, he was rather puzzled to distinguish the species. It belonged to the genus Anas of Gray's 'Genera of Birds,' and bore a considerable resemblance to the mallard. Its colour, however, is entirely a dusky brownish black on the upper parts of the head and body, slightly glossed with green and purple reflections; the under parts are more of a brown colour, the chin and lower parts of the head mottled with grayish brown; a very small whitish spot on the lower part of the neck in front; under parts of the body dark brown, edged with lighter brown; sides and abdomen dusky brown; under tail-coverts edged with lighter brown; the primaries and their coverts are dusky brown, secondaries darker, the dull speculum dark green, glossed with purple, and faintly edged with light brown; under the wings the colours are light grayish white, the lesser coverts dusky brown, edged with grayish white, the axillaries being of this light colour on the one side, and dusky on the other. The bill was greenish dusky, the nail black; the tarsi and feet were reddish orange, the webs dusky, the hind toe small, slightly edged with a membrane. The bird, when stuffed, measured 23 inches from the bill to the extremity of the tail; bill, $2\frac{1}{4}$ inches along the ridge; wing from flexure, $10\frac{1}{2}$ inches; length of tarsus, 2 inches; middle toe, $2\frac{1}{2}$ inches; hind toe, $\frac{1}{2}$ an inch. Dr. Smith said he had examined the body of the bird, and found that the trachea was without dilatation, the bird being a female; the stomach was a powerful gizzard, $2\frac{1}{4}$ inches across, and contained some small pieces of white quartz, and apparently the remains of aquatic larvæ. The intestine was 59 inches, and the two cœca were $5\frac{3}{4}$ and $6\frac{1}{4}$ inches long. Dr. Smith remarked that it did not agree with the description of any of our British birds, and appeared to him somewhat to resemble that of the dusky duck of North America (*Anas obscura*), with which it agreed in general dimensions, but which he believed was quite unknown in Europe; or it might more probably be one of those strange hybrids which occur among ducks, as with the mallard and Muscovy duck. The bird was in perfect and unbroken plumage, and had not the slightest appearance of having escaped from confinement. He was indebted to Mr. John Dickson, jun., gun-maker, Prince's Street, for being able to exhibit the bird, and that gentleman had also favoured him with a few particulars of its capture. It was shot on the river Ouse, not far from York, on the 11th of February, and when first observed, was flying high in the air with other ducks. When closely watched, it was found that they were three in number—which, by the way, is rather against the idea of their being hybrids. One was supposed to be a male, its general plumage being described as of a

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ssy black, and shining like a rook's; it had a white bar on the wings, and, appa- tly, a broad ring of white round the neck: the others were supposed to be females, n their duller plumage. The birds were very shy, and were carefully followed for miles before it was possible to get a shot at them, and on doing so, the two re- ning birds immediately took flight, rising very high in the air, and were soon com- ely out of sight: and although the river was carefully watched for several days, no e of them could again be found.

Dr. Smith also exhibited a specimen of the red-headed pochard (*Anas ferina*), ch is not a very common bird in Scotland, occurring generally during severe storms. neasured nearly 30 inches from tip to tip of the wings; whereas, in Macgillivray's ds, it is described as only 25½ inches. It was shot on the Forth, near Stirling.

A fine specimen of the gray plover (*Squatarola cinerea*), shot near Dunbar in the inning of February, and two specimens of the greenshank (*Totanus glottis*), shot in same neighbourhood about the beginning of February, were also exhibited, neither hem being a common bird in the district.

And, lastly, Dr. Smith called the attention of the meeting to a specimen of the mon curlew (*Numenius arquata*), which by some accident had lost nearly the half ts upper mandible. The point had, however, become quite rounded, so that the bird had contrived to pick up a rather difficult subsistence, even under such un- pitious circumstances.

Imperial L. C. Academy.—Election of Fellows.

The 'Bonplandia,' the official organ of the Imperial L. C. Academy Naturæ Curi- um, announces that the six naturalists mentioned below have received the honour ellowship in the Academy, with the accompanying Academical names: —

1. H. C. Beck, Pastor in Schweinfurt, ... = Metzger.
2. Anatol Nicolajewitsch, Prince of Demidoff, who, it will be recollected, sent the principal part of the Russian articles to the Great Exhibition of 1851,.................................. = Franklin.
3. Edward Newman, of London, ... = Latreille.
4. F. L. Fülleborn, President of the Court of Appeal in Marienwerder, ... = Röschlaub.
5. F. Goldenberg, Professor of Natural History and Mathematics in Saarbrücken, ... = Steinhauer.
6. Philip Wirtgen, Ph.D. Director of the College in Coblentz,... = Ehrhart.

To Contributors.—Communications have been received from the following Contri- ors, and will appear in the June number:—Mr. H. W. Bates, Rev. J. Johnson, Rev. n. Henry Hawker, Wm. Borrer, jun., Esq., L. H. Irby, Esq., R. Dunn, Esq., Wm. ubleday King, Esq., R. H. Meade, Esq.; together with Reports of Proceedings of Dublin Natural History Society, the Tyneside Naturalists' Field Club, and the iety of British Entomologists.

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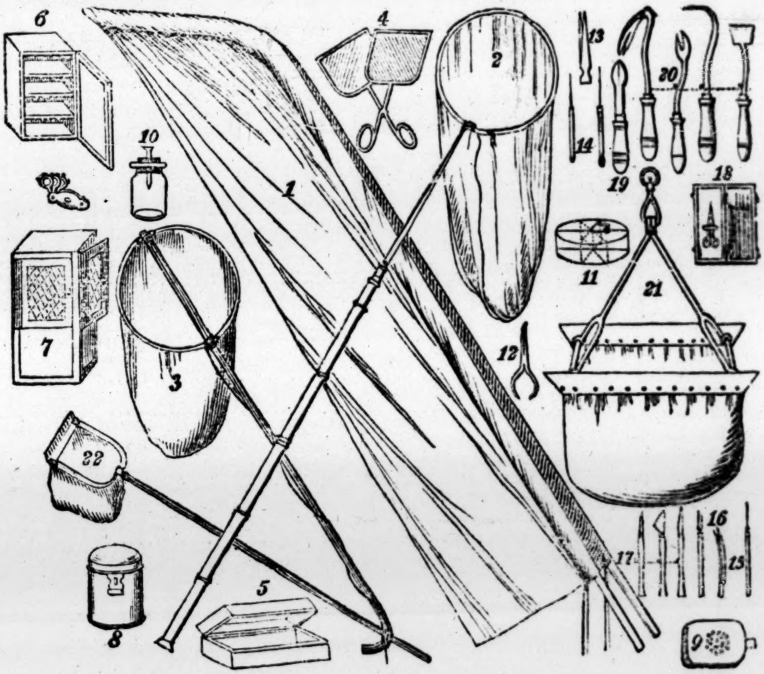

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